PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Assistant Commissioner for Patents
United States Patent and Trademark Office
Box PCT
Washington, D.C.20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 28 August 2000 (28.08.00)	
International application No. PCT/US99/10227	**Applicant's or agent's file reference** RCA 89038
International filing date (day/month/year) 11 May 1999 (11.05.99)	**Priority date** (day/month/year) 16 May 1998 (16.05.98)
Applicant STEWART, Roger, Green et al	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

09 November 1999 (09.11.99)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Claudio Borton

Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
RCA 89038		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/US 99/ 10227	11/05/1999	16/05/1998
Applicant		
THOMSON MULTIMEDIA S.A. et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language,** the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

[ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

[ ] contained in the international application in written form.

[ ] filed together with the international application in computer readable form.

[ ] furnished subsequently to this Authority in written form.

[ ] furnished subsequently to this Authority in computer readble form.

[ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

[ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [ ] **Certain claims were found unsearchable** (See Box I).

3. [ ] **Unity of invention is lacking** (see Box II).

4. With regard to the **title,**

[ ] the text is approved as submitted by the applicant.

[X] the text has been established by this Authority to read as follows:

A BUS ARRANGEMENT FOR A DRIVER OF A MATRIX DISPLAY

5. With regard to the **abstract,**

[ ] the text is approved as submitted by the applicant.

[X] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. 3

[X] as suggested by the applicant.

[ ] None of the figures.

[ ] because the applicant failed to suggest a figure.

[ ] because this figure better characterizes the invention.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 99/ 10227

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

The abstract is modified as follows:

in the whole text the word "buss" must be "bus" .
and the word "busses" must be "buses".

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 99/10227

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G09G3/36

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G09G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 113 181 A (INOUE HIROSHI ET AL) 12 May 1992 (1992-05-12) column 5, line 30 - line 37; figures 2,6,16 column 6, line 50 -column 7, line 8	
A	EP 0 837 446 A (CANON KK) 22 April 1998 (1998-04-22) figure 16	
A	US 5 170 158 A (SHINYA MASAKO) 8 December 1992 (1992-12-08) figures 10,15	

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
11 January 2000	18/01/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Amian, D

1

INTERNATIONAL SEARCH REPORT

[redacted]nation on patent family members

[redacted]ernational Application No
PCT/US 99/10227

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5113181 A	12-05-1992	JP 6068673 B	31-08-1994
		JP 62198898 A	02-09-1987
		DE 3750855 D	26-01-1995
		DE 3750855 T	24-05-1995
		EP 0238867 A	30-09-1987
		ES 2064306 T	01-02-1995
		JP 2715298 B	18-02-1998
		JP 62275296 A	30-11-1987
EP 0837446 A	22-04-1998	JP 10177371 A	30-06-1998
US 5170158 A	08-12-1992	JP 2862592 B	03-03-1999
		JP 3121415 A	23-05-1991

REC'D 13 SEP 2000
WIPO PCT

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
RCA 89038		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US99/10227	11/05/1999	16/05/1998
International Patent Classification (IPC) or national classification and IPC G09G3/36		
Applicant THOMSON MULTIMEDIA S.A. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 9 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
   - VI ☐ Certain documents cited
   - VII ☒ Certain defects in the international application
   - VIII ☒ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
09/11/1999	11.09.2000
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Wolfrum, G Telephone No. +49 89 2399 2299

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US99/10227

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1-8 as originally filed

Claims, No.:

1-9 as originally filed

Drawings, sheets:

1/3-3/3 as originally filed

2. The amendments have resulted in the cancellation of:

☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	
	No:	Claims	1-9
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-9
Industrial applicability (IA)	Yes:	Claims	1-9
	No:	Claims	

2. Citations and explanations

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

1 Reference is made to the following documents:

D1: US-A-5 170 158 (SHINYA MASAKO) 8 December 1992 (1992-12-08)
D2: US-A-5 113 181 (INOUE HIROSHI ET AL) 12 May 1992 (1992-05-12)

2 **Re Item VIII:** Certain observations according to Article 6 PCT

2.1 **Claim 1** and some of its dependent claims do not satisfy the clarity requirements of Article 6 PCT.

2.1.1 The term "first bus" [line 9] is introduced. This term implies that a second bus exists. Since such a bus is never introduced, it is unclear whether or not a "second bus" forms part of the device.

2.1.2 **Claim 1** introduces semiconductor switches each having "a **first terminal**" [lines 7-8] and, furthermore, "a **first plurality of terminals**" [line 9]. In view of the claim it appears that these terminals are separate items. This is obscure since the description states that signals are communicated between these terminals [description, page 2, lines 18-19].

2.1.3 Moreover, for similar reasons, it is unclear where a "second plurality of terminals" [line 13] is located and whether or not they are connected to the second terminals of the switches.

2.1.4 It is unclear whether the "first bus section" [line 13] or the "second plurality of terminals" [line 13] is "extending in a manner to cross over said first bus" [lines 14-15].

2.1.5 The wording "cross over" [line 15] is only significant when it is clear that the arrangement has a two-dimensional, planar structure.

2.1.6 The term "clustering bus arrangement" [line 17] is not further defined and, therefore, it does not impose a limitation.

2.1.7 The relationships in lines 15-18 are unclear ["...extending from [...] coupled in [...] to [...] associated with..."].

2.1.8 According to the present wording the "column conductors" [line 20], which are a part of the display device, also form part of the "arrangement".

2.1.9 **Claim 2:** It is obscure how (passive) terminals may "**develop**"

(active) signals. Furthermore, the demultiplexer is not defined by structural technical features but as a result to be achieved.

2.1.10 **Claim 4:** The terms "in a vicinity of" [line 11] and "remotely from" [line 12] are relative terms which have no pre-assigned, precise meaning. Moreover, the term "local clustering bus arrangement" [line 14] is not defined (cf. **claim 1**, point 2.1.6 above).

2.1.11 **Claim 6:** According to the present wording, the input terminals of the corresponding data line drivers form part of the "arrangement".

2.2 **Claim 7** and **8** and its dependent claim do not satisfy the clarity requirements of Article 6 PCT.

2.2.1 **Claims 7-9** use terms that are different from the terms used in **claims 1-6**. For example, the device of **claim 7** comprises "clusters of data buses" and "a control bus" whereas the device of **claim 1** comprises "a plurality of local buses" and "a first bus". Moreover, it appears that "a cluster of data buses" in **claim 7** is equal to "a data bus" in **claim 8**. This is an inconsistent wording. Similar inconsistencies are noted for the terms used for the terminals of the switches.

2.2.2 In **claim 7** it is unclear whether the "cluster of data buses" or the "data buses" [lines 3-4] itself have ordinally numbered conductors and to which numbering lines 6 to 7 refer.

2.2.3 **Claim 7-8:** According to the present wording, the "successive data lines on said display panel" [**claim 7**, line 2; **claim 8**, line 20] form part of the demultiplexer.

2.2.4 **Claim 7-8:** For the wording "crossover" [**claim 7**, line 9; **claim 8**, line 30] compare point 2.1.5 above.

3 **Re Item V:** Reasoned statement under Article 33 PCT

3.1 As far as **claim 1** could be understood (cf. item VIII), it would appear that its subject-matter is not novel within the meaning of Article 33(2) PCT.

D1 discloses an arrangement for transferring pixel information with respect to pixels arranged in columns and rows of an array of a display device

[col. 1, lines 5-19], comprising:

a plurality of semiconductor switches, each having a first terminal, a second terminal and a third terminal [fig. 18, "S/H" = sample-and-hold circuit; a sample-and-hold circuit is a special type of switch; see also the note below];

a first bus [fig. 18, the wires "SCK1...5" extending from the "TIMING GENERATOR"] coupled to a first plurality of terminals [fig. 18, right input terminals of "S/Hs"] for communicating corresponding signals;

a plurality of local buses [fig. 18, the buses extending in groups of five wires from the left input of the "S/Hs" to the "DACs"] that are separated from one another for communicating corresponding signals, a given local bus having a first bus section coupled to a second plurality of terminals associated with said given local bus [fig. 18, the section extending from the "DACs"] and extending in a manner to cross over said first bus [fig. 18, over the "SCK1...5"] and a second bus section extending from said first bus section and having conductors thereof coupled in a local, clustering bus arrangement [fig. 18, the section after crossing the "SCK1...5" ending in the left input of the "S/Hs"] to the second terminals of switches associated with said given local bus of said plurality of switches, the associated switches having the third terminals thereof coupled to consecutively disposed column conductors [fig. 18,"O0...99"], respectively, of said array.

Note: It is implicitly disclosed that semiconductors are involved. A skilled person identifies the term "integrated circuit (IC)" [**D1**, col. 1, lines 56-58] with standard microelectronic components made out of a semiconductor material as e.g. silicium.

Thus, the subject-matter of **claim 1** is not novel.

4 The subject-matter of the claims dependent on **claim 1** is not novel according to Article 33(2) PCT or not inventive according to Article 33(3) PCT.

4.1 **Claim 2: D1** discloses a "TIMING GENERATOR" providing switch control signals and "DACs" providing picture information signals to the sample-and-hold circuits [fig. 18]. Since each of the 20 outputs of the "DACs" is coupled

systematically to five sample-and-hold circuits, a 1-of-5 demultiplexing is achieved under the control of the "TIMING GENERATOR". Thus, the subject-matter of **claim 2** is not novel.

4.2 **Claim 3:** Figure 18 of **D1** shows five "sub-groups of switches being coupled in common to the corresponding conductor of said first bus", i.e. each sub-group is coupled to the same wire "SCK" of the "TIMING GENERATOR". Thus, the subject-matter of **claim 3** is not novel.

4.3 **Claim 4: D1** discloses in figure 18 that the conductors of said second bus section of said given local bus are disposed in a vicinity of said switches [fig. 18, shortest possible connection] associated with said given bus and remotely from switches [fig. 18, maximum possible distance in the applied linear arrangement] associated with the other local buses of said plurality of local buses to provide bus separation [fig. 18, separation is achieved] for obtaining the local clustering bus arrangement. Thus, the subject-matter of **claim 4** is not novel.

4.4 **Claim 5: D1** discloses in figure 18 that the conductors of said first bus [wires "SCK1...5" from the "TIMING GENERATOR"] extent along said plurality of semiconductor switches. Thus, the subject-matter of **claim 5** is not novel.

4.5 **Claim 6: D1** discloses data line drivers [fig. 18, controlled by the wire "OE" from the "TIMING GENERATOR"]. Thus, the subject-matter of **claim 6** is not novel.

5 As far as **claim 7** could be understood (cf. item VIII), it would appear that its subject-matter is not novel within the meaning of Article 33(2) PCT and not inventive within the meaning of Article 33(3) PCT.

5.1 **D2** discloses a signal demultiplexer [fig. 2, "n x m matrix wiring circuit connected to M signal lines **(m < M)** for the N x M active matrix", col. 3, lines 13-15; col. 4, lines 2-8] for a display panel [fig. 1], comprising:

a plurality of clusters of switches [fig. 2, ref. 6; col. 3, lines 57-61; in **D2** (cf. fig. 2) a cluster of switches forms part of the corresponding "BLOCK"],

each cluster [="BLOCK"] having ordinally numbered switches 1 thru n arranged sequentially, and each switch having respective input, output and control terminals ["AS transistors", col. 3, line 61] with control terminals of all switches in each cluster connected to a common control terminal [fig. 2 and fig. 6, "g(1)" for "1st BLOCK", etc.; col. 3, line 63 to col. 4, line 12], and having respective output terminals coupled to successive data lines on said display panel [fig. 1 and fig. 18, "S(1)...S(M)"];

a plurality of clusters of data buses [fig. 2, "signal lines s(1)...s(m)" of the corresponding "BLOCK"], each cluster of data buses having ordinally numbered conductors 1 thru n, the ordinally numbered conductors of respective clusters of data buses being coupled to input terminals of corresponding ordinally numbered switches of a plurality of said clusters of switches [fig. 2];

a control bus including a plurality of conductors, said control bus arranged to crossover [fig. 6; col. 3, lines 24-26; col 5, lines 30-37] said plurality of clusters of data buses; and

connections between one of said plurality of conductors [fig. 2 and fig. 6, "g(1)...g(n)"] of said control bus and respective common control terminals of said clusters of switches.

Thus, the subject-matter of **claim 7** is not novel.

5.2 Furthermore, it is noted that the subject-matter merely presents the wiring of a standard demultiplexer. Such a device is known to a person skilled in the art. The "crossover" of data lines and control lines is unavoidable in order to use the device. Therefore, arranging the "crossover" at the input or the output of the switches is merely a selection routinely performed by a skilled person. Consequently, without relating to any document of the prior art, the subject-matter is considered to be not inventive.

6 As far as **claim 8** and its dependent **claim 9** could be understood (cf. item VIII), it would appear that its subject-matter is not novel within the meaning of Article 33(2) PCT and not inventive within the meaning of Article 33(3) PCT.

The subject-matter of **claim 7** and **claim 8** would appear the same since only the

wording is slightly different. Therefore, the same reasoning as for **claim 7** applies. Furthermore, since the feature of **claim 9** also forms part of the subject-matter of **claim 7**, the same reasoning as for **claim 7** applies to the subject-matter of **claim 9**.

7 **Re Item VII:** Certain defects in the international application

7.1 The terms "buss" and "busses" are orthographically incorrect.

7.2 The features of all the claims should be provided with reference signs to the figures placed in parentheses (Rule 6.2(b) PCT).

7.3 The independent claims are not in the correct two-part form, with those features known in combination from the prior art (document **D1** respectively **D2**) being placed in the preamble and with the remaining features being included in the characterising part (Rule 6.3(b) PCT).

7.4 According to Rule 5.1 (a)(ii) PCT, the description should acknowledge and cite the relevant prior art, specifically documents **D1** and **D2**.

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

TRIPOLI, Joseph S.
THOMSON MULTIMEDIA LICENSING INC.
P.O. Box 5312
Princeton, New Jersey 08543
ETATS-UNIS D'AMERIQUE

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Rule 71.1)

Date of mailing *(day/month/year)*	11.09.2000
Applicant's or agent's file reference: RCA 89038	IMPORTANT NOTIFICATION

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US99/10227	11/05/1999	16/05/1998

Applicant
THOMSON MULTIMEDIA S.A. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the International application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/	Authorized officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 623656 epmu d Fax: +49 89 2399 - 4465	Marnell, J Tel.+49 89 2399-2251

Form PCT/IPEA/416 (July 1992)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
RCA 89038		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US99/10227	11/05/1999	16/05/1998
International Patent Classification (IPC) or national classification and IPC G09G3/36		
Applicant THOMSON MULTIMEDIA S.A. et al.		

1. This International preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 9 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
   - VI ☐ Certain documents cited
   - VII ☒ Certain defects in the international application
   - VIII ☒ Certain observations on the International application

Date of submission of the demand	Date of completion of this report
09/11/1999	11.09.2000
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Wolfrum, G Telephone No. +49 89 2399 2299

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US99/10227

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1-8 as originally filed

Claims, No.:

1-9 as originally filed

Drawings, sheets:

1/3-3/3 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	
	No:	Claims	1-9
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-9
Industrial applicability (IA)	Yes:	Claims	1-9
	No;	Claims	

2. Citations and explanations

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

1 Reference is made to the following documents:

D1: US-A-5 170 158 (SHINYA MASAKO) 8 December 1992 (1992-12-08)
D2: US-A-5 113 181 (INOUE HIROSHI ET AL) 12 May 1992 (1992-05-12)

2 **Re Item VIII:** Certain observations according to Article 6 PCT

2.1 **Claim 1** and some of its dependent claims do not satisfy the clarity requirements of Article 6 PCT.

2.1.1 The term "first bus" [line 9] is introduced. This term implies that a second bus exists. Since such a bus is never introduced, it is unclear whether or not a "second bus" forms part of the device.

2.1.2 **Claim 1** introduces semiconductor switches each having "a **first terminal**" [lines 7-8] and, furthermore, "a **first plurality of terminals**" [line 9]. In view of the claim it appears that these terminals are separate items. This is obscure since the description states that signals are communicated between these terminals [description, page 2, lines 18-19].

2.1.3 Moreover, for similar reasons, it is unclear where a "second plurality of terminals" [line 13] is located and whether or not they are connected to the second terminals of the switches.

2.1.4 It is unclear whether the "first bus section" [line 13] or the "second plurality of terminals" [line 13] is "extending in a manner to cross over said first bus" [lines 14-15].

2.1.5 The wording "cross over" [line 15] is only significant when it is clear that the arrangement has a two-dimensional, planar structure.

2.1.6 The term "clustering bus arrangement" [line 17] is not further defined and, therefore, it does not impose a limitation.

2.1.7 The relationships in lines 15-18 are unclear ["...extending from [...] coupled in [...] to [...] associated with..."].

2.1.8 According to the present wording the "column conductors" [line 20], which are a part of the display device, also form part of the "arrangement".

2.1.9 **Claim 2:** It is obscure how (passive) terminals may "**develop**"

(active) signals. Furthermore, the demultiplexer is not defined by structural technical features but as a result to be achieved.

2.1.10 **Claim 4:** The terms "in a vicinity of" [line 11] and "remotely from" [line 12] are relative terms which have no pre-assigned, precise meaning. Moreover, the term "local clustering bus arrangement" [line 14] is not defined (cf. **claim 1**, point 2.1.6 above).

2.1.11 **Claim 6:** According to the present wording, the input terminals of the corresponding data line drivers form part of the "arrangement".

2.2 **Claim 7** and **8** and its dependent claim do not satisfy the clarity requirements of Article 6 PCT.

2.2.1 **Claims 7-9** use terms that are different from the terms used in **claims 1-6**. For example, the device of **claim 7** comprises "clusters of data buses" and "a control bus" whereas the device of **claim 1** comprises "a plurality of local buses" and "a first bus". Moreover, it appears that "a cluster of data buses" in **claim 7** is equal to "a data bus" in **claim 8**. This is an inconsistent wording. Similar inconsistencies are noted for the terms used for the terminals of the switches.

2.2.2 In **claim 7** it is unclear whether the "cluster of data buses" or the "data buses" [lines 3-4] itself have ordinally numbered conductors and to which numbering lines 6 to 7 refer.

2.2.3 **Claim 7-8:** According to the present wording, the "successive data lines on said display panel" [**claim 7**, line 2; **claim 8**, line 20] form part of the demultiplexer.

2.2.4 **Claim 7-8:** For the wording "crossover" [**claim 7**, line 9; **claim 8**, line 30] compare point 2.1.5 above.

3 **Re Item V:** Reasoned statement under Article 33 PCT

3.1 As far as **claim 1** could be understood (cf. item VIII), it would appear that its subject-matter is not novel within the meaning of Article 33(2) PCT.

D1 discloses an arrangement for transferring pixel information with respect to pixels arranged in columns and rows of an array of a display device

[col. 1, lines 5-19], comprising:

a plurality of semiconductor switches, each having a first terminal, a second terminal and a third terminal [fig. 18, "S/H" = sample-and-hold circuit; a sample-and-hold circuit is a special type of switch; see also the note below];

a first bus [fig. 18, the wires "SCK1...5" extending from the "TIMING GENERATOR"] coupled to a first plurality of terminals [fig. 18, right input terminals of "S/Hs"] for communicating corresponding signals;

a plurality of local buses [fig. 18, the buses extending in groups of five wires from the left input of the "S/Hs" to the "DACs"] that are separated from one another for communicating corresponding signals, a given local bus having a first bus section coupled to a second plurality of terminals associated with said given local bus [fig. 18, the section extending from the "DACs"] and extending in a manner to cross over said first bus [fig. 18, over the "SCK1...5"] and a second bus section extending from said first bus section and having conductors thereof coupled in a local, clustering bus arrangement [fig. 18, the section after crossing the "SCK1...5" ending in the left input of the "S/Hs"] to the second terminals of switches associated with said given local bus of said plurality of switches, the associated switches having the third terminals thereof coupled to consecutively disposed column conductors [fig. 18,"O0...99"], respectively, of said array.

Note: It is implicitly disclosed that semiconductors are involved. A skilled person identifies the term "integrated circuit (IC)" [**D1**, col. 1, lines 56-58] with standard microelectronic components made out of a semiconductor material as e.g. silicium.

Thus, the subject-matter of **claim 1** is not novel.

4 The subject-matter of the claims dependent on **claim 1** is not novel according to Article 33(2) PCT or not inventive according to Article 33(3) PCT.

4.1 **Claim 2: D1** discloses a "TIMING GENERATOR" providing switch control signals and "DACs" providing picture information signals to the sample-and-hold circuits [fig. 18]. Since each of the 20 outputs of the "DACs" is coupled

systematically to five sample-and-hold circuits, a 1-of-5 demultiplexing is achieved under the control of the "TIMING GENERATOR". Thus, the subject-matter of **claim 2** is not novel.

4.2 **Claim 3:** Figure 18 of **D1** shows five "sub-groups of switches being coupled in common to the corresponding conductor of said first bus", i.e. each sub-group is coupled to the same wire "SCK" of the "TIMING GENERATOR". Thus, the subject-matter of **claim 3** is not novel.

4.3 **Claim 4: D1** discloses in figure 18 that the conductors of said second bus section of said given local bus are disposed in a vicinity of said switches [fig. 18, shortest possible connection] associated with said given bus and remotely from switches [fig. 18, maximum possible distance in the applied linear arrangement] associated with the other local buses of said plurality of local buses to provide bus separation [fig. 18, separation is achieved] for obtaining the local clustering bus arrangement. Thus, the subject-matter of **claim 4** is not novel.

4.4 **Claim 5: D1** discloses in figure 18 that the conductors of said first bus [wires "SCK1...5" from the "TIMING GENERATOR"] extent along said plurality of semiconductor switches. Thus, the subject-matter of **claim 5** is not novel.

4.5 **Claim 6: D1** discloses data line drivers [fig. 18, controlled by the wire "OE" from the "TIMING GENERATOR"]. Thus, the subject-matter of **claim 6** is not novel.

5 As far as **claim 7** could be understood (cf. item VIII), it would appear that its subject-matter is not novel within the meaning of Article 33(2) PCT and not inventive within the meaning of Article 33(3) PCT.

5.1 **D2** discloses a signal demultiplexer [fig. 2, "n x m matrix wiring circuit connected to M signal lines **(m < M)** for the N x M active matrix", col. 3, lines 13-15; col. 4, lines 2-8] for a display panel [fig. 1], comprising:

a plurality of clusters of switches [fig. 2, ref. 6; col. 3, lines 57-61; in **D2** (cf. fig. 2) a cluster of switches forms part of the corresponding "BLOCK"],

each cluster [="BLOCK"] having ordinally numbered switches 1 thru n arranged sequentially, and each switch having respective input, output and control terminals ["AS transistors", col. 3, line 61] with control terminals of all switches in each cluster connected to a common control terminal [fig. 2 and fig. 6, "g(1)" for "1st BLOCK", etc.; col. 3, line 63 to col. 4, line 12], and having respective output terminals coupled to successive data lines on said display panel [fig. 1 and fig. 18, "S(1)...S(M)"];

a plurality of clusters of data buses [fig. 2, "signal lines s(1)...s(m)" of the corresponding "BLOCK"], each cluster of data buses having ordinally numbered conductors 1 thru n, the ordinally numbered conductors of respective clusters of data buses being coupled to input terminals of corresponding ordinally numbered switches of a plurality of said clusters of switches [fig. 2];

a control bus including a plurality of conductors, said control bus arranged to crossover [fig. 6; col. 3, lines 24-26; col 5, lines 30-37] said plurality of clusters of data buses; and

connections between one of said plurality of conductors [fig. 2 and fig. 6, "g(1)...g(n)"] of said control bus and respective common control terminals of said clusters of switches.

Thus, the subject-matter of **claim 7** is not novel.

5.2 Furthermore, it is noted that the subject-matter merely presents the wiring of a standard demultiplexer. Such a device is known to a person skilled in the art. The "crossover" of data lines and control lines is unavoidable in order to use the device. Therefore, arranging the "crossover" at the input or the output of the switches is merely a selection routinely performed by a skilled person. Consequently, without relating to any document of the prior art, the subject-matter is considered to be not inventive.

6 As far as **claim 8** and its dependent **claim 9** could be understood (cf. item VIII), it would appear that its subject-matter is not novel within the meaning of Article 33(2) PCT and not inventive within the meaning of Article 33(3) PCT.

The subject-matter of **claim 7** and **claim 8** would appear the same since only the

wording is slightly different. Therefore, the same reasoning as for **claim 7** applies. Furthermore, since the feature of **claim 9** also forms part of the subject-matter of **claim 7**, the same reasoning as for **claim 7** applies to the subject-matter of **claim 9**.

7 **Re Item VII:** Certain defects in the international application

7.1 The terms "buss" and "busses" are orthographically incorrect.

7.2 The features of all the claims should be provided with reference signs to the figures placed in parentheses (Rule 6.2(b) PCT).

7.3 The independent claims are not in the correct two-part form, with those features known in combination from the prior art (document **D1** respectively **D2**) being placed in the preamble and with the remaining features being included in the characterising part (Rule 6.3(b) PCT).

7.4 According to Rule 5.1 (a)(ii) PCT, the description should acknowledge and cite the relevant prior art, specifically documents **D1** and **D2**.